Synchro and SimTraffic Notes

Original Prepared on 4/10/15 by Christopher Holzer

Below are some settings that are easy to forget about, but they can have an impact on results.

Synchro

Options → Network Settings →Lanes: Flow Rate (vphpl) [which shows up as "Ideal Satd. Flow" in the Lane Settings button] = 1750 rather than 1900. From NCHRP Report 599 page 6 item 5 and also 2010 HCM page 18-76.

Options → Network Settings → Timings: Offset Style = "TS2 – 1st Green" rather than "Begin of Green". This greatly impacts time-space diagrams and coordination when one direction turns green before the other! "TS2 – 1st Green" references the first coordinated movement to turn green, similar to controllers in the field. "Begin of Green" references when both coordinated movements are green.

Options → Network Settings → Simulation: Taper Length = 100ft rather than 25ft. This makes the maps look more realistic. In SimTraffic this allows vehicles to slide over into the turn lane when thru queues are backed-up all the way to the taper area.

Volume Settings Button: Link OD Volumes. Typically only change this at interchange ramps, to prevent off-ramp vehicles from turning onto the crossroad and then immediately turning back onto the interstate in the other direction. For example, if interstate runs E/W, go to the WB off-ramp intersection (a.k.a. north ramp), click "Link OD Volumes" for the NB lanes, go under the NB L column, and set the "From EBL Weight" to zero. Then flip-flop these steps for the EB off-ramp intersection (a.k.a. south ramp).

Link OD Volumes. Similar to interchange ramps discussed above, you may also want to use this when modeling J-Turn intersections – to prevent mainline thru vehicles from using the U-Turn areas.

Timing Settings Button: Prior to changing anything, verify/enter the correct phase numbers. Enter the correct yellow and all-red times.

SimTraffic

General Notes to Consider:

-In SimTraffic simulations, vehicles are not able to make two-stage left turns at unsignalized divided highway intersections. The vehicles wait for a gap in both directions of traffic prior to turning (they won't cross into the median and wait in the median). However, the results in Synchro, **do** account for two-stage left turns if the median is wide enough to store a vehicle. See Version 7 user guide page 7-19.

-Typically use an average of 10 runs for SimTraffic simulation results.

-Synchro and SimTraffic queue lengths can be quite different. See Version 7 user guide page 23-13 and 7-27. For studies, typically use SimTraffic 95th percentile length or SimTraffic maximum length, whichever is shorter, rounded to 25ft increment. However, use Synchro (not SimTraffic) queue lengths for unsignalized divided highway intersections.

-Delete the simulation .HST files when finished with study. These have HUGE file sizes.

SimTraffic (continued)

Options → Intervals and Volumes: Change start time and duration if needed. Typical seeding = 5 minutes. Typical Duration [analysis period] = 15 minutes. From 2010 HCM page 18-76 and Synchro Version 7 user guide page 13-29.

Switch "PHF Adjust" to "yes" rather than "no". This incorporates the PHF values that were originally entered in Synchro.

SimTraffic Parameters

Vehicles | Drivers | Intervals | Data Options

Intervals	0	1	
Interval Name	Seeding	Recording	–
Start time (hhmm)	04:40 P	04:45 P	–
Duration (min)	5	15	–
Record Statistics	No	Yes	–
Growth Factor Adjust	Yes	Yes	–
PHF Adjust	Yes	Yes	–
AntiPHF Adjust	No	No	–
Percentile Adjust	No	No	–
Percentile Adjust (%ile)	–	–	–
Timing Plan ID	–	–	–
Data Start Time (hhmm)	–	–	–

Options → Vehicle Parameters: Adjust the occurrence and length as appropriate for your situation. An example is below. Typically change Carpool1 and Carpool2 occurrence to zero.

SimTraffic Parameters

Vehicles | Drivers | Intervals | Data Options

Vehicles Types	1	2	3	4	5	6	7	8	9	10
Vehicle Name	Car1	Car2	Truck SU	SemiTrk1	SemiTrk2	Truck DB	Bus	Carpool1	Carpool2	
Vehicle Occurence (%)	0.80	0.20	0.10	0.10	0.55	0.20	0.05	0.00	0.00	0.00
Acceleration	File	File	File	File	File	File	File	File	File	File
Vehicle Length (ft)	20.0	16.0	30.0	55.0	75.0	114.0	40.0	20.0	14.0	16.0
Vehicle Width (ft)	6.0	6.0	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0
Vehicle Fleet	Car	Car	Trk	Trk	Trk	Trk	Bus	Pool	Pool	Car
Occupancy (# people)	1.3	1.3	1.2	1.2	1.2	1.2	20.0	2.8	2.8	1.3
Graphics Shape	Car	Car	Truck	SemiTrk	SemiTrk	DBTruck	Bus	Car	Car	Car
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